

was increased by SA but not by GA (respectively $+1.2$ cm. s $^{-1}$; $P=0.026$ vs. -0.4 cm. s $^{-1}$; $P=0.5$). Diastolic function was modified by GA (E/A ratio = 1.1 ± 0.3 vs. 1.2 ± 0.4 ; $P=0.05$) but not by SA (E/A ratio = 0.9 ± 0.3 vs. 0.9 ± 0.4 ; $P=0.24$). All these effects lead to a decrease of aortic velocity time integral in the GA group contrary to in the SA group (-1.1 ± 7.4 P = 0.02 for GA vs. -0.38 ± 3.85 , $P=0.8$ for SA).

Conclusion: Both SA and GA induce increase of LV global longitudinal strain rate and systolic peak velocity. During GA, these adaptations of systolic function are not enough to compensate the fall of systemic vascular resistance and lead to more hypotension than during SA. These results encourage privileging SA in patients without myocardial reserve, especially older patients.

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Left ventricular diastolic function evaluation by left atrial volume and myocardial performance index in patients with acute myocardial infarction

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Background: Both left atrial volume index (LAVI) and myocardial performance index (MPI) were proved to be reliable parameters of left ventricular (LV) diastolic function.

Aim: We aimed to assess their usefulness in the setting of acute myocardial infarction (AMI) in comparison with conventional diastolic parameters

Methods: A cohort of three hundred and sixty patients with AMI (72% with ST segment elevation) with a mean age of 61.6 ± 12.4 years (79% males; 39% diabetics) was enrolled. Patients with atrial fibrillation or conduction abnormalities were excluded from the study. All patients had a conventional and Doppler echocardiography assessment 24 to 36 hours after admission coupled with a measurement of LAVI and MPI index by conventional Doppler method (MPI1), tissue Doppler method at the lateral side of the mitral annulus (MPI2) and at its medial side (MPI3). Correlation between parameters was evaluated by Pearson coefficient (r).

Results: The three MPI indexes were significantly correlated to these parameters of LV diastolic function: The early diastolic tissue velocities at the lateral side of the mitral annulus (Ea l) ($r_1=0.31$, $r_2=0.36$, $r_3=0.46$, $p<0.001$) and its medial side (Ea s) ($r_1=0.37$, $r_2=0.35$, $r_3=0.34$, $p<0.001$) and the combined parameter Early diastolic velocity by conventional Doppler (E)/ Ea s ($r_1=0.2$, $r_2=0.2$, $p<0.01$).

LVAI was not correlated to MPI ($r_1=0.14$, $r_2=0.11$, $r_3=0.11$, $p>0.05$) and it was only correlated with the early diastolic tissue velocity at the medial side of the mitral annulus (Ea s) ($r=-0.18$, $p<0.05$).

Conclusion: While myocardial performance conventional and tissue indexes are strongly correlated with diastolic LV function in the acute phase of myocardial infarction, left atrial volume index seems be not sensitive to acute but only chronic alterations of this function.

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Prognosis of acute myocarditis from late gadolinium enhancement cardiovascular magnetic resonance using a quick and easy score

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Background: Cardiac MRI plays an increasingly important role in the diagnosis of acute myocarditis. However, its prognostic value is less well established and requires specific post-processing of images.

Methods: In a prospective pilot MRI study, we assessed the prognostic value of the evolution in a simplified visual quantitative score (SQS) of late gadolinium enhancement (LGE). Patients hospitalized between June 2008 and January 2011 with a diagnosis of acute myocarditis underwent MRI at initial hospitalization and again at 3-months. The prognostic value of the change in SQS was assessed at one year using a combination of death, heart transplant, and confirmed recurrence as main outcome.

Results: Twenty-eight patients were included in this study of which 19 were men (68%). The mean patient age was 33 ± 11 years [16 – 57 years]. Patients with stable or an increase in SQS (Δ SQS = $3.53\% \pm 5.31\%$) suffered more main clinical outcome events than patients with a decrease in SQS (Δ SQS = $-3.47\% \pm 5.50\%$), with a statistically significant difference ($p=0.02$). However, at initial admission, we found no significant difference between patients with stable or an increase in SQS and those with decreased SQS regarding other frequently used prognostic variables such as minimum ejection fraction during hospitalization (50 ± 4 vs. $45 \pm 9\%$, $p=NS$) or peak CPK (877 ± 296 vs. 413 ± 140 U/L $p=NS$). A post-hoc exploratory ROC analysis showed SQS ≥ 7.35 at initial MRI could identify patients with poor prognosis (Se=100%, Sp= 60%, $p=0.03$).

Conclusions: Monitoring of the evolution of delayed contrast enhancement in MRI using a simple quantitative score is of interest for the prognosis of acute myocarditis, to identify patients at risk of death, transplant or recurrence, and to guide patient management.

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Non-invasive detection of tako-tsubo cardiomyopathy versus acute anterior myocardial infarction by transthoracic Doppler echocardiography

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Typical tako-tsubo cardiomyopathy (TTC) mimics acute anterior myocardial infarction (AMI) and the differential diagnosis is challenging before coronary angiography (CA) is performed: it demonstrates reduced or absent antegrade flow in the left anterior descending artery (LAD) in AMI whereas there is no such flow limiting in TTC. At the acute phase, we tested the usefulness of non-invasive coronary flow velocity (CFV) visualization by transthoracic Doppler echocardiography (TDE) to distinguish between these two diseases. **Methods:** For this purpose, we prospectively enrolled 28 consecutive patients (pts) with TTC (75 ± 10 years, 93% females) which were compared to 28 consecutive pts with AMI treated successfully by primary angioplasty (66 ± 12 years, 79% females). All pts underwent assessment of CFV in the distal part of the LAD just before CA, using color and pulsed wave TDE. In addition, the symmetric involvement of wall motion abnormalities (WMA) based on the extent of the disease far beyond one coronary territory in TTC was searched by TDE.

Results: The distal LAD CVF was visible in 38/56 cases (68%) in the whole population, in all cases with TTC (100%) and in 10 cases with AMI (36%). The sensitivity (Se) and specificity (Sp) of the LAD CFV visualization for the diagnosis of TTC were 100% and 64% respectively with a diagnostic accuracy of 82%. By comparison, the pattern of WMA yielded a Se of 75%, Sp of 86%, and a diagnostic accuracy of 80%, this pattern being inconclusive in 11 cases. When CFV and pattern of WMA were combined together the Se and Sp were 75% and 96% respectively, with a diagnostic accuracy of 86% to detect TTC. The assessment of right ventricular WMA and left ventricular obstruction did not improve the diagnostic value of the combination of the above tools.

Conclusion: Non-invasive evaluation of CFV in the distal LAD could be helpful to differentiate TTC from AMI, and its combination with the pattern of WMA improved slightly its diagnostic accuracy.